

What is claimed is:

1. An ink jet printing apparatus for printing an image on wide format flexible substrate, comprising: a substrate (108) and a mechanism (136) for moving the substrate (108) in first direction (110), a print head (120, 210) and a mechanism (138) for moving the print head (120, 210) in second direction, image position detecting means (180, 250) for detecting image on substrate position, and a control computer (114), characterized in that errors in said image and substrate (108) positions are corrected by adapting the geometry and position of the currently printed swath to the geometry and position of the adjacent earlier printed image swath.
2. The apparatus of claim 1, characterized in that said image and substrate position detecting means (180 and 250) measure the currently printed image on substrate position relative to the earlier printed image (swath);
3. The apparatus of claim 1, characterized in that the control computer (114) calculates the deviation of the current image on substrate position relative to the previous swath position and generates a correction value;
4. The apparatus of claim 1, characterized in that for correction of said image position error said print head (120) is moved in said first (110, 170) direction in accordance with said image position correction value;
5. The apparatus of claim 1, characterized in that for correction of said image position error the print data is shifted between inner and peripheral nozzles of said print head (210) in said first printing direction (110, 170) in accordance with said image position correction value.
6. The apparatus of claim 1, characterized in that said print head (120, 210) prints the image position control marks (200) concurrently with image printing and said

- image position control marks (200) define the geometry and position of said printed swath on said substrate (108);
7. The apparatus of claim 1, characterized in that said print head (120, 210) prints said image position control marks (200) concurrently with the image printing and places the image position control marks (200) in places consisting of one of a group of image free areas and image areas;
  8. The apparatus of claims 1 and 7, characterized in that said control marks (200) are printed by ink consisting of one of a group visible ink, invisible ink or magnetic;
  9. A method of multi pass inkjet image printing on wide format flexible substrates, comprising moving a substrate (108) in first printing direction (110) and scanning the substrate (108) by reciprocally moving a print head (120) in second printing direction (124, 146), characterized in that errors in said substrate (108) movement are corrected by adapting the geometry and position of the next printed swath to the geometry and position of the adjacent earlier printed image swath.
  10. The method of claim 9, characterized in that said geometry and position of the next printed swath is adapted to said geometry and position of the adjacent earlier printed image swath by moving said print head (120) in first direction (170);
  11. The method of claim 9, characterized in that said geometry and position of the next printed swath is adapted to said geometry and position of the adjacent earlier printed image swath by shifting data between the inner and peripheral nozzles of said print head (210) in the first direction (170);
  12. The method of claim 9, characterized in that the coordinates of said control marks (200) determine the geometry and position of the image;
  13. The method of claim 9, characterized in that said image position detecting means (180) measure the image and substrate position;

14. The method of claim 9, characterized in that said control computer (114) calculates the deviation of the current image on substrate position from the adjacent earlier printed image on substrate position and generates the correction value;
15. A method of multi pass inkjet printing on wide format flexible substrate, characterized in that distortions of the geometry of a wide format flexible substrate (108) are compensated by adapting the geometry and position of the printed swath to the geometry and position of the adjacent earlier printed image swath.
16. A method of multi pass inkjet printing on wide format flexible substrate, characterized in that distortions of the geometry of a wide format flexible substrate (108) are compensated by distributing the movement in one direction between the print head (120) that performs small and accurate movements and flexible substrate (108) that performs coarse movement.
17. An ink jet printing apparatus for printing an image on wide format flexible substrates, comprising: a substrate (108) and a mechanism (136) for moving the substrate (108) in first direction (110), a print head (120), a mechanism (138) for moving the print head (120) in second direction, position detecting means (180) for detecting actual image and substrate position and control computer (114), characterized in that said print head makes small incremental movement in said first direction and errors in said substrate (108) position are corrected by dividing the movement in said first direction between coarse movement performed by said substrate (108) and accurate movement of said print head (120).
18. The apparatus of claim 17, characterized in that said image position detecting means (180) measure the image on substrate position relative to the adjacent earlier printed image;
19. The apparatus of claim 17, characterized in that said image position detecting means (180) are one of a group of elect-optical, magnetic or contact roller means;

20. The apparatus of claim 17, characterized in that the control computer (114) calculates the deviation of the printed image swath relative to the previously printed swath and generates a correction value;
21. The apparatus of claim 17, characterized in that for correction of said substrate (108) position error said print head (120) is moved in said first printing (110, 170) direction in accordance with said swath position correction value.
22. The apparatus of claim 17, characterized in that said print head (120) prints the image position control marks (200) concurrently with image printing and said marks (200) define the geometry and position of said printed swath on said substrate (108);
23. The apparatus of claims 17 and 21, characterized in that said control marks (200) are printed by ink consisting of one of a group visible ink or invisible ink;
24. An ink jet printing apparatus for printing an image on wide format flexible substrates, comprising: a substrate (108) moving in first direction (110) and a print head (120) moving in second direction (124, 146), characterized in that said print head is capable of making small incremental movements in said first direction (170) and errors in said substrate (108) movement are corrected by dividing the movement in said first direction between coarse movement performed by said substrate (108) and accurate movement of said print head (120).
25. A method of multi pass inkjet printing on wide format flexible substrates, characterized in that distortions of the geometry of a wide format flexible substrate (108) are compensated by distributing the movement in one direction between the flexible substrate (108) that performs coarse movement and shift of the data to be printed between inner and outer groups of nozzles equivalent to the small and accurate movement by the print head.

26. A method of multi pass inkjet printing on wide format flexible substrate, characterized in that distortions of the geometry of a wide format flexible substrate (108) are compensated by distributing the movement in the first direction between flexible substrate (108) that performs coarse movement and the print head (120) that performs small and accurate movements in the same direction and concurrently moves in the second direction.